REMARKS/ARGUMENTS

1. Objection to the title of the invention:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Response:

The title has been amended to more clearly indicate the invention to which the claims are directed. Acceptance of the title is respectfully requested.

2. Rejection of claims 1-14 under 35 U.S.C. 112, second paragraph:

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 5, 7, 9, 12, 14, the recitation "unique" is indefinite.

Response:

Claims 1, 5, 7, 9, 12, 14 have been amended to clarify this claim language. Independent claims 1 and 9 now each state that each button outputs a voltage level that is different from the voltage levels of all of the other buttons when the button is activated.

In addition, claim 8 has been amended to make the claim language more definite. Claim 8 now recites that n+1 I/O pins are utilized to detect which button of up to 2^n buttons was activated, n being a positive integer.

Reconsideration of claims 1, 5, 7, 9, 12, 14 is respectfully requested.

3. Rejection of claims 1-14 under 35 U.S.C. 102(e):

Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Zumkehr et al. (US 2004/0123207).

Response:

Claims 1 and 9 specify that a button set circuit has a plurality of buttons, each of which outputs a voltage level that is different from all of the other buttons. A control circuit controls operation of a voltage generating circuit to alternately output different voltage levels. A comparator then compares the voltage Vref1 output from the button set circuit with the voltages Vref2 output from the voltage generating circuit to determine which button was pressed. The comparison results are output to the control circuit, which then makes the determination as to which button was pressed.

In contrast, Zumkehr does not teach a way to determine which button of a button circuit was pressed by comparing the voltage output by a button circuit with a plurality of voltage levels. In Fig.4A, Zumkehr teaches a comparator 420 that is used for comparing a data signal DQ with VREF, VREFLO, and VREFHI. The data signal DQ corresponds to the voltage of digital data saved in the memory device, of which the voltage can be locked and maintained at a predetermined time. Zumkehr states this in paragraph [0034], "Referring to FIG. 2A, each DQS 110 from memory is delayed as shown (delayed DQS 130) so that data DQ 120 can be clocked where the data may be valid and stable". As such, the data signal DQ does not represent a voltage generated at the moment when a user presses a key on the alphanumeric input device 122.

Therefore, Zumkehr does not teach all of the claimed limitations contained in claims 1 and 9, and does not teach comparing voltages generated by a voltage generating circuit to a voltage generated by a button set circuit to determine which

button of the button set circuit is activated. For these reasons, the applicant respectfully submits that claims 1 and 9 are patentable over Zumkehr.

Regarding claims 5 and 12, Zumkehr does not teach that the voltage level of each button is twice as great as a preceding button and half as much as a succeeding button, as is claimed. Zumkehr does not teach that each button has a different voltage from the other buttons, and that the ratio of voltage levels output by successive buttons is a two to one ratio for ease in detecting which button was activated. Therefore, claims 5 and 12 should also be allowable over the cited prior art.

Furthermore, claims 2-8 and 10-14 are dependent on claims 1 and 9, and should be allowed if their respective base claims are allowed. Reconsideration of claims 1-14 is therefore respectfully requested.

4. Introduction to new claims 15-18:

New independent claim 15 specifies that the button set circuit comprises first and second buttons for respectively outputting first and second voltage levels. A voltage generating circuit outputs first and second reference voltages, and a comparator compares each of the first and second reference voltages with the voltage output from the button set circuit. A control circuit then determines which button was activated based on the voltage comparison result. These claim amendments are fully supported by the specification and figures, and no new matter is added. New claims 16-18 are substantial duplicates of original claims 5-7, and no new matter is added. Acceptance of new claims 15-18 is respectfully requested.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,

Winston Hsu Date: 01/11/2007

Winston Hsu, Patent Agent No. 41,526
P.O. BOX 506, Merrifield, VA 22116, U.S.A.
Voice Mail: 302-729-1562
Facsimile: 806-498-6673
e-mail : winstonhsu@naipo.com

Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 13 hours behind the Taiwan time, i.e. 9 AM in D.C. = 10 PM in Taiwan.)